



**THE DATASHEET OF  
FRX050-90F**



<b>RFE</b>    <b>FUZETEC</b>	<b>NO.</b>	<b>PQ56-101E</b>		
<b>Product Specification and Approval Sheet</b>	<b>Version</b>	<b>1</b>	<b>Page</b>	<b>1/4</b>

# Radial Leaded PTC Resettable Fuse: FRX60/90 Series

## 1. Summary

- (a) **RoHS Compliant (Lead Free) Product**
- (b) **Applications: Telecom and wide variety of electronic equipment.**
- (c) **Product Features: Low hold current, Solid state, Radial leaded product ideal for up to 90V<sub>DC</sub>**
- (d) **Operation Current: 0.05A~3.75A**
- (e) **Maximum Voltage: Up to 90V<sub>DC</sub>**
- (f) **Temperature Range: -40°C to 85°C**

## 2. Agency Recognition

UL: File No. E211981  
 C-UL: File No. E211981  
 TÜV: File No. R50004084

## 3. Electrical Characteristics (23°C)

Part Number	Hold Current $I_H, A$	Trip Current $I_T, A$	Max. Time to Trip at 5x $I_H, s$	Max. Current $I_{MAX}, A$	Rated Voltage $V_{MAX}, V_{DC}$	Typ. Power $P_d, W$	Resistance	
							$R_{MIN}$ Ohm	$R1_{MAX}$ Ohm
FRX005-60F	0.05	0.10	5.0	40	60	0.26	7.30	20.00
FRX010-60F	0.10	0.20	4.0	40	60	0.38	2.50	7.50
FRX017-60F	0.17	0.34	3.0	40	60	0.48	2.00	8.00
FRX020-90F	0.20	0.40	2.2	40	72/90	0.41	1.83	4.40
FRX025-90F	0.25	0.50	2.5	40	72/90	0.45	1.25	3.00
FRX030-90F	0.30	0.60	3.0	40	72/90	0.49	0.88	2.10
FRX035-90F	0.35	0.75	10.0	40	72/90	1.30	0.70	2.50
FRX040-90F	0.40	0.80	3.8	40	72/90	0.56	0.55	1.29
FRX050-90F	0.50	1.00	4.0	40	72/90	0.77	0.50	1.17
FRX055-90F	0.55	1.20	10.0	40	72/90	1.50	0.40	1.50
FRX065-90F	0.65	1.30	5.3	40	72/90	0.88	0.31	0.72
FRX075-90F	0.75	1.50	6.3	40	72/90	0.92	0.25	0.60
FRX090-90F	0.90	1.80	7.2	40	72/90	0.99	0.20	0.47
FRX110-90F	1.10	2.20	8.2	40	72/90	1.50	0.15	0.38
FRX135-90F	1.35	2.70	9.6	40	72/90	1.70	0.12	0.30
FRX160-90F	1.60	3.20	11.4	40	72/90	1.90	0.09	0.22
FRX185-90F	1.85	3.70	12.6	40	72/90	2.10	0.08	0.19
FRX250-90F	2.50	5.00	15.6	40	72/90	2.50	0.05	0.13
FRX300-90F	3.00	6.00	19.8	40	72/90	2.80	0.04	0.10
FRX375-90F	3.75	7.50	24.0	40	72/90	3.20	0.03	0.08

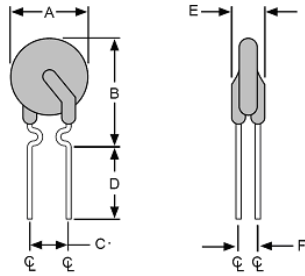
$I_H$ =Hold current-maximum current at which the device will not trip at 23°C still air.  
 $I_T$ =Trip current-minimum current at which the device will always trip at 23°C still air.  
 $I_{MAX}$ = Maximum fault current device can withstand without damage at rated voltage ( $V_{MAX}$ ).  
 $V_{MAX}$ =Maximum voltage device can withstand without damage at its rated current.  
 $P_d$ =Typical power dissipated from device when in tripped state in 23°C still air environment.  
 $R_{MIN}$ =Minimum device resistance at 23°C.  
 $R1_{MAX}$ =Maximum device resistance at 23°C, 1 hour after tripping.  
 Physical specifications:  
 Lead material: FRX005-60F~FRX040-90F Tin plated copper clad steel, 24 AWG.  
 FRX050-90F~FRX090-90F Tin plated copper, 24 AWG.  
 FRX110-90F~FRX375-90F Tin plated copper, 20 AWG.  
 Soldering characteristics: MIL-STD-202, Method 208E.  
 Insulating coating: Flame retardant epoxy, meets UL-94V-0 requirement.

Designed and manufactured by Fuzetec Technology Co., Ltd., offered by RFE International, Inc.

NOTE: Specification subject to change without notice.

2021/03/23

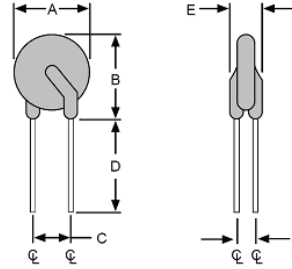
#### 4. Production Dimensions (millimeter)



**FRX 005-60F ~ FRX 090-90F**

Lead Size: 24AWG

φ 0.51 mm Diameter



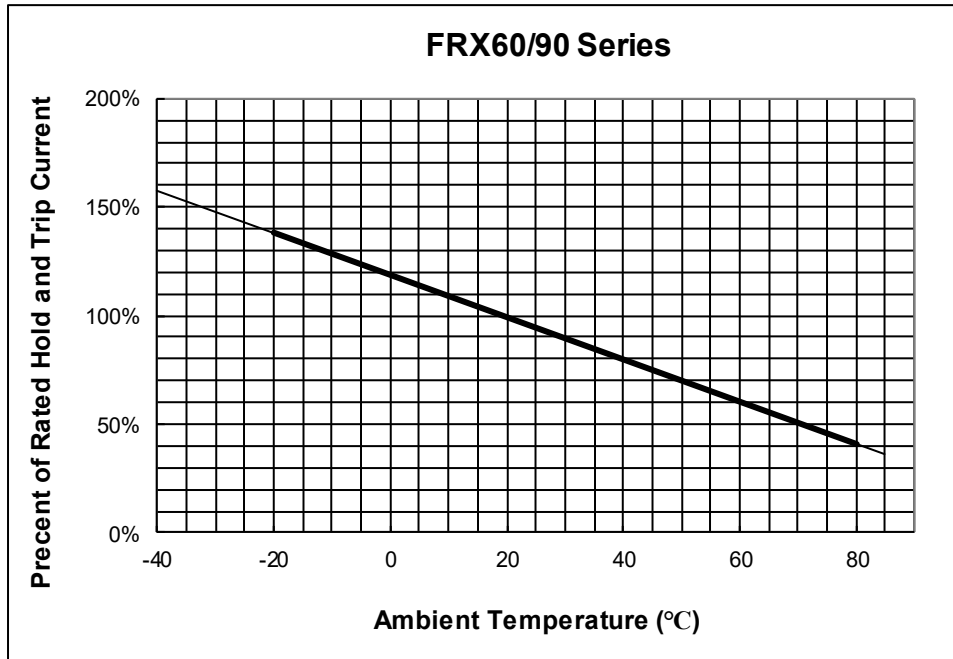
**FRX 110-90F ~ FRX 375-90F**

Lead Size: 20AWG

φ 0.81 mm Diameter

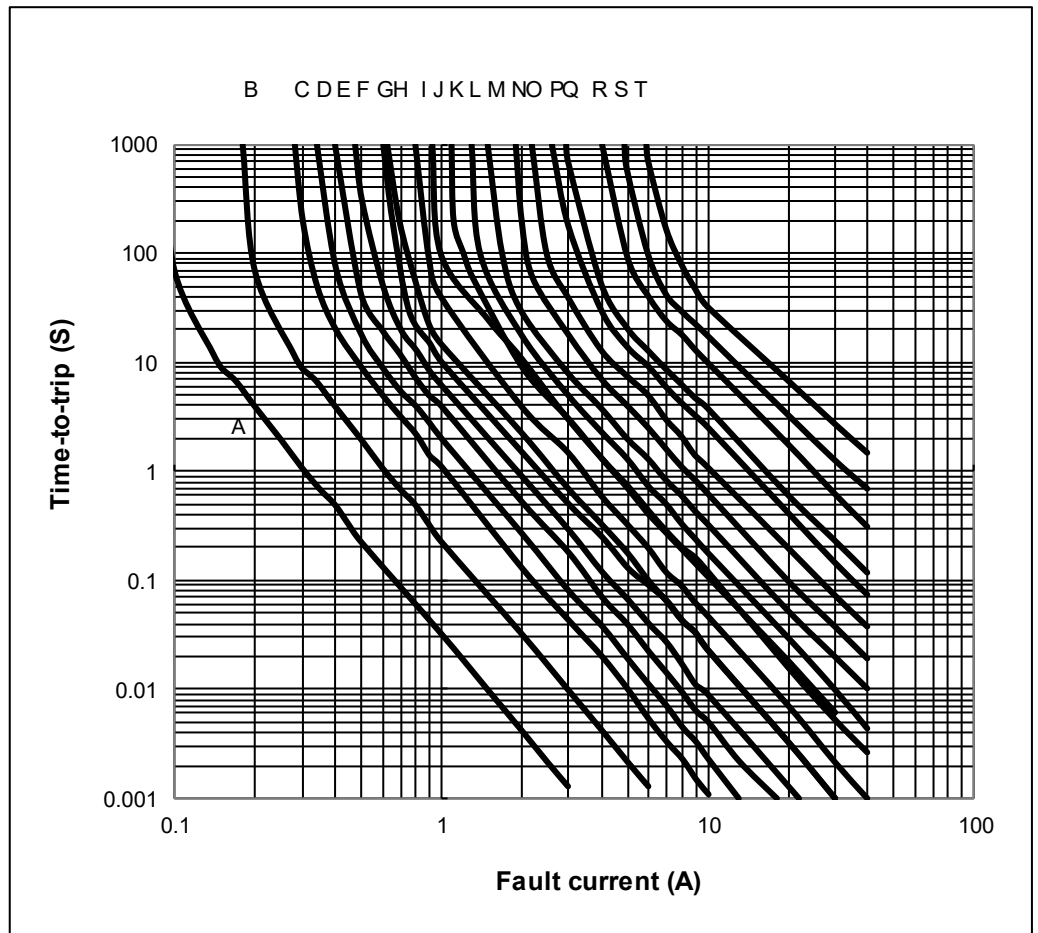
Part Number	A	B	C	D	E	F
	Maximum	Maximum	Typical	Minimum	Maximum	Typical
FRX005-60F	7.4	12.7	5.1	7.6	3.1	1.1
FRX010-60F	7.4	12.7	5.1	7.6	3.1	1.1
FRX017-60F	7.4	12.7	5.1	7.6	3.1	1.1
FRX020-90F	7.4	12.7	5.1	7.6	3.1	1.1
FRX025-90F	7.4	12.7	5.1	7.6	3.1	1.1
FRX030-90F	7.4	12.7	5.1	7.6	3.1	1.1
FRX035-90F	7.4	12.7	5.1	7.6	3.1	1.1
FRX040-90F	7.6	13.5	5.1	7.6	3.1	1.1
FRX050-90F	7.9	13.7	5.1	7.6	3.1	1.1
FRX055-90F	9.7	14.0	5.1	7.6	3.1	1.1
FRX065-90F	9.7	14.5	5.1	7.6	3.1	1.1
FRX075-90F	10.4	15.2	5.1	7.6	3.1	1.1
FRX090-90F	11.7	15.8	5.1	7.6	3.1	1.1
FRX110-90F	13.0	18.0	5.1	7.6	3.1	1.4
FRX135-90F	14.5	19.6	5.1	7.6	3.1	1.4
FRX160-90F	16.3	21.3	5.1	7.6	3.1	1.4
FRX185-90F	17.8	22.9	5.1	7.6	3.1	1.4
FRX250-90F	21.3	26.4	10.2	7.6	3.1	1.4
FRX300-90F	24.9	30.0	10.2	7.6	3.1	1.4
FRX375-90F	28.5	33.5	10.2	7.6	3.1	1.4

### 5. Thermal Derating Curve



### 6. Typical Time-To-Trip at 23°C

- A =FRX005-60F
- B =FRX010-60F
- C =FRX017-60F
- D =FRX020-90F
- E =FRX025-90F
- F =FRX030-90F
- G =FRX035-90F
- H =FRX040-90F
- I =FRX050-90F
- J =FRX055-90F
- K =FRX065-90F
- L =FRX075-90F
- M =FRX090-90F
- N =FRX110-90F
- O =FRX135-90F
- P =FRX160-90F
- Q =FRX185-90F
- R =FRX250-90F
- S =FRX300-90F
- T =FRX375-90F



## 7. Material Specification

Lead material: FRX005-60F~FRX040-90F Tin plated copper clad steel, 24 AWG.

FRX050-90F~FRX090-90F Tin plated copper, 24 AWG.

FRX110-90F~FRX375-90F Tin plated copper, 20 AWG.

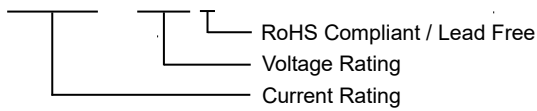
Soldering characteristics: MIL-STD-202, Method 208E.

Insulating coating: Flame retardant epoxy, meets UL-94V-0 requirement

## 8. Part Numbering and Marking System

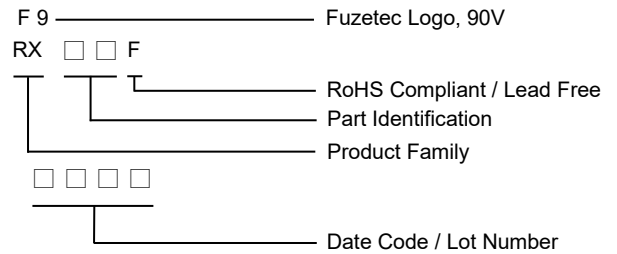
### Part Numbering System

FRX □ □ □ - □ □ F



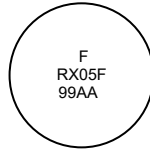
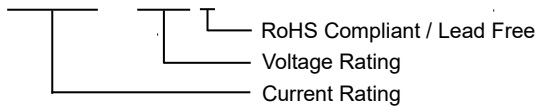
Example

### Part Marking System

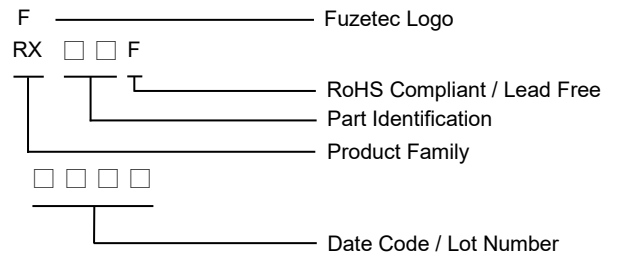


OR

FRX □ □ □ - □ □ F



Example



Note: Font on Marking may look slightly different due to fine turnings of each Marking printer.

**Warning:** - Each product should be carefully evaluated and tested for their suitability of application.



- Operation beyond the specified maximum rating or improper use may result in damage and possible electrical arcing and/or flame.
- PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
- Avoid contact of PPTC device with chemical solvent, including some inert material such as silicone based oil, lubricant and etc. Prolonged contact will damage the device performance.
- Additional protection mechanism are strongly recommended to be used in conjunction with the PPTC device for protection against abnormal or failure conditions.
- Avoid use of PPTC device in a constrained space such as potting material, housing and containers where have limited space to accommodate device thermal expansion and/or contraction.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View FRX050-90F on WIN SOURCE](#)
- ⊖ [RFE/Fuzetec Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management